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A Review Of Open Source Software For Library Services

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***Abstract*— Use of new information technologies in modern libraries is an essential factor in the development of new innovative services. The choice of appropriate software is very important in the development of these services. The report aims to analyze the open source software for library services, to present their advantages and disadvantages and to classify them by function. The best representatives of open source software for each functional group are described. The software analyzed can be effectively used for the provision of innovative services in the libraries not requiring large funds.**

Keywords — open source software; library services; innovative services

I. INTRODUCTION

The use of open source software (OSS) for library services takes an increasingly large share in libraries. This is due to the lack of funds, not so good support from the suppliers of commercial software, the lack of diversity or efficiency of the modules of commercial software for libraries. This necessitates the search for alternative solutions to optimize the function of libraries and introducing new innovative information services. An appropriate solution is the use of open source software (OSS). Good sites that provide information about open source software (OSS) for library services are:

- Free/Open source software for libraries [1]
- Open source systems for libraries [2]
- List of free and open-source software packages [3]
- Library Success: A Best Practices Wiki [4]
- Practical Open Source Software for Libraries [5]

The analysis of the information provided shows that open source software (OSS) for library services has been classified by function in 22 categories, with some categories offered software reaches up to 30 products. This is very indicative of the applicability of this type of software in libraries.

II. DEFINITION AND ADVANTAGES OF OPEN SOURCE SOFTWARE (OSS)

The OSS is a collaborative programming development which releases its source code freely to the general public for any use, modifications and redistribution without any licensing restrictions. The source code refers to instructions written by humans in a computer programming language to be compiled into a binary format that can run on a computer, carrying out the tasks outlined in the source code. Instructions to computers are normally written by programmers in programming languages like - C, C++, Java, Perl, Python, etc. These instructions are readable by humans and referred to as source code [8].

The OSS is becoming increasingly popular software development method. It is a term to describe the tradition of open standards, shared source code, and collaborative development. The OSS programs are available for any user for use. In case of proprietary software, the software is not free nor is the source code of the software available to the end user.

There have been many successful open-source projects e.g. Linux operating system, Apache web server, MySQL, PHP, Sendmail, Bind, Tcl/Tk, Python, etc. Firefox web browser has recently surpassed Microsoft's Internet Explorer due to its quality. Google is currently investing money into open source development, with its own browser Chrome, and two operating systems, Android for mobile phones and Chrome for computers.

All the OSS software are copyrighted and distributed with license terms and conditions designed to ensure that the source code is always available. The most popular open source license is GPL, i.e., GNU Public License. Generally, value of any OSS is measured in terms of its simplicity and connectivity.

A. Following are some of the benefits of using OSS:

- Software does not depend on any specific hardware or operating system platform to function.
- With OSS, people can have any number of copies of programs on their machines, at home or at work.
- Since source code is available one can customise the software as per the requirements.
- It is possible to incorporate the software into the another program to perform new functions.
- If the user base of open source is large, it can sustain in the market for long time.
- Since developers working for open source are spread across the world its development does not depend on any single person/community. Hence, new release versions can frequently be made available to the community.

- There is large community of people who work on popular open source hence regularly new versions of the OSS are available to the community.
- There is a group of community who can provide support through mailing lists, internet relay chat centers to get quick answer to any problem/query.
- Since it is open source, there is no data loss as well as with open standards/formats, hence it is easy to retrieve data for future.

B. Following are some of the drawbacks of using OSS

- Lack of formal support and training that a commercial software package offer.
- Often software support is provided only through mailing lists and discussion forums.
- Installing and maintaining OSS generally requires more technical knowledge than that required for commercial software.
- OSS are also not known for ease of use as the focus is usually on functionality.
- With no vendor responsible for the software, support for the OSS applications can vary and often depend on the user/developer's communities commitment to the project.
- Documentation manuals of OSS are not very simple;
- A medium level of technical expertise is sometimes required.

III. ANALYSIS AND CLASSIFICATION OF OPEN SOURCE SOFTWARE FOR LIBRARY SERVICES

According to the developers of the site for Free/Open source software for libraries (https://foss4lib.org) [1] open source software for library services has been classified by function in 22 categories, with some categories offered software reaches up to 30 products. Similar classification has been also made on the site Open source systems for libraries (www.oss4lib.org) [2]. The main classification of OSS in use is as follows:

- Archival Record Manager and Editor
- Bibliography
- Content Management Framework
- Content Management System
- Course Management
- Data Preservation and Management
- Digital Repository
- Discovery Interface
- Electronic Reserves
- Electronic Resource Management
- Image Display and Manipulation
- Integrated Library System
- Interlibrary Loan
- Journal Publishing
- Knowledge Base
- Metadata Manipulation
- Online Public Access Catalog
- Reference
- Wiki Management

We will analyze in brief the most important sections that are most relevant to libraries

A. Content Management Systems - OSS for content management - Content management systems /CMS/ tools allow to easily create complex library websites with lot of new features.

The CMS is a software program that makes building and maintaining websites faster and easier. The CMS lets one build a website that can be quickly and easily updated by non-technical staff members. These open source systems are created and supported by a community of developers, and can be downloaded without cost. There are over 15 such systems in practice and the most used are: Joomla, WordPress, Kete, Bibliography Module, ResCarta Toolkit, Avalon Media System, MaiaCMS.

B. Course Management - OSS for course management - These systems are used to deliver online education. Today, most course management systems make extensive use of web and include features such as discussion forums, chats, journals, grading tools, and student tracking. Moodle is main representative in this category. Other commonly used systems are ATutor, Claroline, Ilias, Sakai, dotLRN, Fle3.

C. Digital libraries – OSS for digital libraries -

Digital Libraries (DLS) / institutional repositories (IRS) / Digital Repository are discussed intensively since 2000. Wide range of OSS for digital library (over 30) are available especially CDS-Invenio, DSpace, Eprints, Fedora Repository, Greenstone [6], Omeka, Islandora, BitCurator, SobekCM Digital Repository Software, Archivematica, IR+ (Irplus) Institutional Repository, MyCoRe, CollectionSpace, etc. Each of this software has its advantages and disadvantages. DSpace and Eprints are the most popular software used in the world to build digital repositories.

D. Integrated Library System – OSS for library automation - The most popular OSS for library automation, which are available free to end users are Koha, Evergreen, Senayan Library Management System (SLiMS), Next-L Enju, Open Library Environment (OLE), ABCD (Automation of liBraries and Documentation Centers), BiblioteQ, E-Library, Web Librarian, OpenBiblio, NewGenLib, OPALS, etc.

Recently during 2011, Breeding carried out a survey of automation software used in US academic and public libraries and it was found that many libraries in US continue to opt for open source ILSs rather than proprietary products. Evergreen and Koha ILS have become mainstream in libraries from USA.

E. Knowledge Base - Knowledge Base represents a repository of information that provides tools for collecting, organizing, sharing, searching and using information. It is organized so that it can be used and edited by computer programs (machine processing) or by its users and creators. The following products are in this category: Kbplus, Guide On The Side, BibApp,

Vivo, RT: Request Tracker, TemaTres Vocabulary Server, Bibserver.

F. Metadata Manipulation - The metadata can be defined as information about the information itself. Metadata come before data: they describe the characteristics of the data with a high level of abstraction. Examples of the use of metadata - Book - metadata is the name of the author, title, ISBN, number of edition, type (genre) of the book, name of publisher, year of publication, price. Implementation of library request can be done using a computer based on this metadata.[7] This category includes the products: Scripto, Oral History Metadata Synchronizer, Protégé Desktop, WebProtégé, BIBFRAME Editor, Metafacture, MARC Library (SobekCM), Catmandu, Traject, MARC Toolkit For Libraries, CSharp MARC, Conversion Tools For Libraries, TEI Boilerplate, Ruby-Marc, PHP MARC, MarcXimiL, MARC4J, Marc2frbr.

G. Electronic Resource Management - open source software systems to monitor Internet-based resources for electronic journals and books, database for them. These systems are designed to handle Internet-based metadata, overcoming the disadvantages of library catalogs and integrated library systems. This category includes the products: Calibre, SMDB, ERMes, E-Matrix, CORAL, ReSearcher, The Home Library Archive, Esciurus, Sushi Py, FreERMS, Custom Summon Searches, CUFTS.

H. Wiki Management [5]

Wikis help libraries to organize library resources and improve communication with users. Wiki software can be used to perform several tasks such as to create subject guides in libraries, to create documentation manuals, to create professional knowledge repository, to maintain wiki for a software development and its activities, to maintain conference website, etc. There is a wide range of OSS available for creating wikis are CoWiki, Instiki, MediaWiki, MoinMoin, PmWiki, Swiki, and Twiki.

IV. CONCLUSIONS

Many OSS tools are now available for use in libraries. The development of digital library initiative is mainly driven by using OSS tools. For creating digital libraries, libraries relied on OSS tools as an alternative instead of any commercial digital library systems mainly due to dissatisfaction with functionality.

The OSS resources for libraries are vast and are increasing at an exponential rate. This software can be used in libraries to provide new value added services to end users without any requirements of large budgets. The following sections provide list of different open source applications which are available from different categories and which can be effectively used to provide new services to end users with successful implementation without relying on any commercial vendors.

Open source offers useful savings in time, money, and resources. Large percentage of library professionals has recognized potential for OSS systems and applications. With exponential growth of information, user expectations are growing and more and more “personalized” services are required by users and there is a great opportunity for librarians to play a leading role in organizing and presenting filtered information by making use of them.

REFERENCES:

[1] Free/Open source software for libraries (https://foss4lib.org)
[2] Open source systems for libraries (www.oss4lib.org)
[3] List of free and open-source software packages. https://en.wikipedia.org/wiki/List_of_free_and_open-source_software_packages
[4] Library Success: A Best Practices Wiki (www.libsuccess.org)
[5] Nicole Engard, “Practical Open Source Software for Libraries, Chandos Publishing, 2010. pp,112-115 (http://opensource.web2learning.net/)
[6]. D. Vasilev, R. Petrova – Vasileva and Svilen Semkov, “Comparative analysis of applied open source software for digital repositories in libraries”, Reports of Technical University-Sliven, Vol. 4, 2014 ISSN 1312-3920, pp.25-27
[7]. D. Vasilev and R. Petrova – Vasileva, “Criteria for evaluating open source software for digital libraries”, Reports of Technical University-Sliven, Vol. 6, 2014 ISSN 1312-3920, pp.27-32
[8]. D. Vasilev, “Open source software for simulation and monitoring of computer networks”, International Conference on Engineering, Technologies and Systems, TECHSYS 2015, Plovdiv, May 28-29, Journal of the Technical University – Sofia, Plovdiv branch, Bulgaria, “Fundamental Sciences and Applications” Vol. 21, book 1, 2015 pp.237-240